Critical Care Therapy and Respiratory Care Section

Category:	Clinical
Section:	Clinical Monitoring
Title:	EEG Electrode Placement and Troubleshooting Service
Policy #:	1A
Revised:	03/01

1.0 DESCRIPTION

1.1 Purpose

To define the process by which the Critical Care Therapy and Respiratory Care Section (CCTRCS) will assist the Clinical Epilepsy Section (CES) of NINDS with the placement of electrodes and troubleshooting of electroencephalogram (EEG) tracings on patients who require long-term EEG monitoring; and to define/describe the skills required to carry-out a quality service.

1.2 Hours of Operation

The CCTRCS is a 24 hour/day 7 day/week clinical service within the Clinical Center. The CCTRCS is available for EEG troubleshooting anytime outside the normal working hours of the CES (7 AM to 5 PM) including evenings, weekends, holidays, etc. In addition, in the event that CES personnel are unavailable during normal working hours, the CCTRCS will be available for call. There will always be a designated contact person from CES available to the CCTRCS for consultation should the need arise.

1.3 Staff Qualifications

All NBRC credentialed staff members involved in this service will have completed cognitive and psychomotor proficiency validation in EEG troubleshooting. Proficiencies will be documented and maintained by the Education Coordinator of the CCTRCS, or designee.

1.4 Communication

1.4.1 The CCTRCS will be notified of new EEG patients by the admitting MD through the MIS.

1.4.2 During the times when the CCTRCS is responsible for the quality of the EEG, the assigned therapist will monitor the EEG every two hours. In the event a problem occurs in between the two-hour checks, the therapist will be paged.

1.4.3 The neurology on-call fellow should be contacted in the event that quality waveforms cannot be re-established despite extensive troubleshooting interventions by CCTRCS. Documentation in the MIS system will also serve as a communication tool for all that have access to the patient's clinical record.

2.0 EQUIPMENT AND MATERIALS

2.1 Electrolyte conductive paste

2.2 Electrolyte gel

2.3 5cc Syringe

2.4 5cc Luer Lock Syringe

2.5 15 Gauge, 1/2in. blunt tip needle

2.6 2 x 2 Gauze sponges

2.7 Skin preparation gel

2.8 Collodian adhesive solution

2.9 Collodian Remover

2.10 Compressed Air Source

2.11 Oxygen Connecting Tubing

2.12 Universal precautions attire

3.0 PROCEDURE

Identify malfunctioning EEG lead(s) or montages in need of re-gelling or re-attachment. (Note: Forehead leads FP1, FP2, F7 and F8 tend to loosen more easily than other leads).
In the event that CES places an EEG electrode in an unusual site, CES will notify CCTRCS of its placement and location. Therapists will communicate unusual lead placements using the International (10-20) Electrode Placement chart during departmental reports at shift change (See Appendix A).

3.1 Procedure A: Re-gel an Electrode

3.1.1 Collect appropriate equipment: electrolyte gel, 5cc syringe with blunt tip needle and collodian.

3.1.2 Wash and dry hands thoroughly.

3.1.3 Don necessary universal precautions attire (see policy on Universal Precautions).

3.1.4 Identify patient and explain procedure for re-gelling EEG lead.

3.1.5 Attach blunt tip needle to 5cc syringe and fill with electrolyte gel. (**Note: All blunt tip needles and syringes are to be single patient use/single intervention use**.)

3.1.6 Gently insert the blunt needle tip into the small hole on top of the malfunctioning electrode. The needle tip must go through the gauze into the cup of the electrode but should not touch the patient's scalp. Insert a small amount of electrolyte gel into the electrode until the waveform quality improves. (Note: Insertion of too much gel may loosen the electrode.)

3.1.7 Wipe off excess gel and apply a small amount of collodion (adhesive) over the hole in the gauze to seal in the new gel.

3.1.8 Check EEG to confirm dynamic waveform.

3.2 Procedure B: Re-attach an Electrode

3.2.1 Collect appropriate equipment: electrolyte paste, collodian remover, skin prep gel, gauze, compressed air source, oxygen tubing and collodian.

3.2.2 Wash and dry hands thoroughly.

3.2.3 Don necessary universal precautions attire (see policy on Universal Precautions).

3.2.4 Identify patient and explain procedure for re-attaching leads.

3.2.5 Remove "old" electrode paste from site, if necessary, with gauze using a small amount of collodion remover, making sure the contact point on the scalp is clean and dry.

3.2.6 Using gauze, gently rub a small amount of abrasive skin prep gel (Omni-prep or Nu Prep) on the contact point of the scalp.

3.2.7 Remove “old” electrolyte paste from electrode cup with gauze. Fill cup with electrolyte paste leveling off excess paste so that it is even with the cup rim. Make sure there are **no** bubbles in the paste filling the electrode.

3.2.8 Place electrode on the prepped site, with lead wire toward the back of the patient’s head. Cover electrode cup and stem with pre-cut gauze.

3.2.9 Fill 5cc Luer Lock syringe with collodian (adhesive) and apply evenly over the gauze, using air compressor with attached connecting tubing to dry. The gauze should be neatly molded around the lead for a secure fit.

3.2.10 Check EEG to confirm dynamic waveform.

NOTE: If practitioner is unable to obtain a satisfactory waveform after repeated attempts to secure EEG leads, the neurology fellow on-call must be notified.

3.3 Procedure D: Removing EEG Electrodes

3.3.1 Provide patient with a towel to protect their eyes from accidental drippage of collodian remover.

3.3.2 Fill a 5cc Luer Lock syringe with collodian remover and slowly apply remover to the attached electrode, while gently pulling on gauze until electrode is removed.

3.3.3 Notify the patient's nurse when electrode removal is completed and document in the MIS.

3.4 Beehive Machinery

3.4.1 Therapists must be familiar with EEG monitoring equipment including power on/off panel and cable connections. Nursing staff will retain primary responsibility for VCR tape changes in the absence of CES technical staff.

3.4.2 The power switch controls power for all Beehive A/N rack-mounted components, provided each component is plugged into

the system power strip and its own power strip is left in the "On" position. When you turn on the power switch, it glows red.

4.0 POST PROCEDURE

4.1 Discard all syringes, needles and other disposable items in proper receptacles.

4.2 All supplies must be removed from the patient's room and stored appropriately.

4.3 Any remaining collodian must be stored in a "non-flammable" storage cabinet.

4.4 Document intervention in the MIS.

5.0 DOCUMENTATION

5.1 MIS Documentation

All routine patient/system checks and troubleshooting activity will be documented in the MIS once a shift. Documentation should include the following information:

5.1.1 Time and date of routine checks

5.1.2 Initial set-up date

5.1.3 Waveform quality

5.1.4 Interventions/Troubleshooting

5.1.5 Adverse reactions

5.1.6 Patient tolerance

5.1.7 Communication with other health professionals

5.2 EEG QA

The "EEG Quality Assessment Form" must be completed once a shift and have a copy of the shift's EEG MIS documentation attached. This data will be reviewed once a month to monitor quality improvement.

SIGNATURE:_____ DATE:_____
Assistant Section Chief, CCTRCS, CCMD

SIGNATURE:_____ DATE:_____
Section Chief, CCTRCS, CCMD

SIGNATURE:_____ DATE:_____
Medical Director, CCTRCS, CCMD

(Orig. 3/00)